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THE
DIRECTOR
FOR
PATENT-SLATINGS.

Calculated to Instruct Noblemen, Gentlemen, Builders and other Artificers, in the Use of the NEW-INVENTED Method of covering the Roofs of Churches, Houses, or any other Buildings, with SLATES, so as to prevent their being rified by Winds; damaged by Frost, Snow, or Hail; or penetrated by the strongest driving Rains; and so as greatly to reduce the Weight of Materials used, and consequently the Degree of Expence incurred, in framing Roofs and covering Buildings after the common Modes.

Illustrated with Five COPPER-PLATES,
On which are engraved the DESIGNS of several ROOFS in different Forms, tending to render intelligible to every Capacity the various Methods to be used in this Kind of Slating.

By the PATENTEE,
CHARLES RAWLINSON,

Of Lostwithiel, in the County of Cornwall, Builder.

English Patent 1016 of 1772

L O N D O N:

Printed for, and sold by, the PATENTEE, at *Lostwithiel* afore said. Sold also by his Agent, Mr. JOHN HAND, Printseller, No. 409. *Oxford-Street*; and by the Booksellers in Town and Country.

MDCCLXXII.

4 - APR 1939



ADVERTISEMENT.

AS many fruitless attempts have at different times been made to reduce the great quantity of timber, and weight of slating, used in covering the roofs of houses, &c. in the methods commonly practised; C. RAWLINSON, the Author of this *Directory*, having considered the great importance and utility of the desired improvement, (especially if at the same time such roofs could be rendered more durable, and better adapted to withstand the violent winds, rains, &c. so destructive to houses covered in the common mode) was induced to turn his thoughts that way; and, after studiously and attentively weighing the matter, has been so happy as to find out an expedient for Covering Buildings with Slates, or Rags, which, though simple

A 2

and

and easy in itself, will, as he has proved by experiment, effectually prevent the roofs of such buildings from being rified by the most violent winds, penetrated by the strongest driving rains, or damaged by the severest frost, hail, or snow, and this with about half the weight of slates, and not more than two thirds of the timber, commonly made use of.*

Judging it reasonable that he should secure to himself some emolument from a discovery entirely his own, and calculated for general utility, he has procured His MAJESTY's LETTERS PATENT, bearing date the 22d day of May, 1772, and granting unto him (the said Charles Rawlinson) the sole right, profit, advantage, and

• This method not only lessens the quantity of timber, but renders it more durable by the unctuous cement used in putting the slates together.

and emolument, directly or indirectly accruing from the use and exercise of his new-invented method of covering the roof or roofs of any church, chapel, house, warehouse, or other building whatever, after any or either of the modes or methods by him specified in the instrument he has caused to be enrolled in the high court of Chancery.

The said Patentee, presuming however, that the advantages of the Patent method of Covering (so manifestly superior, in point of duration, &c. to any other method now in use) would determine the proprietors of buildings to adopt it very generally, and that he might consequently receive orders not in his power to execute, takes this occasion of acquainting the Nobility, Gentry, and all persons whatsoever concerned in building, That by applying to him, the said CHARLES RAWLINSON, to
his

his agent Mr. J. HAND, Printseller, in Oxford-Street, London, or to any of his agents in the country, (a list of whom shall speedily be made public) they may obtain a Licence or Licences, executed by the Patentee in his own hand-writing, empowering them to cover any building, or buildings, after any or either of the modes laid down in the following Directory, wherein he presumes the whole process is so clearly set forth, that no theorist or practitioner, of moderate skill in the art of building, will find any difficulty in making himself master of it.

N. B. Each Licence is intended to transfer a right to cover one or more buildings; the situation of which, with the number of squares (of one hundred superficial feet each) contained in the roof or roofs of the same, to be particularly specified in the licence; which licence is to be paid for, at the time of taking out, at the
rate

rate of 2s. 6d. for every such square, so to be covered. Whoever therefore shall presume to encroach on the right of the Patentee, by covering, by virtue of any licence, any building or buildings not expressed in such licence; or by covering, after the Patent method, any building or buildings whatsoever, without previously obtaining of him, or some one of his agents, a licence for so doing, shall be prosecuted to the utmost rigour of the law.—And whoever will give information of any person or persons so offending, to the Patentee, or to either of his agents, shall, on the conviction of the offender or offenders, receive a reward of Ten Guineas.—Witness

C. RAWLINSON.

✶ The Patentee will engage to cover buildings in any part of England or Wales, for any Noblemen or Gentlemen who are disposed to honour

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honour him with their commands, and to make an extra allowance (for travelling expences backwards and forwards) of five shillings per day for each of his men, reckoning twenty miles to a day's journey.

He will also engage to furnish any quantity of Slates, known by the name of **CORNISH RAGS**, (which are superior to every other kind of slates in the kingdom) squared to different sizes suitable to the manner of covering, and delivered on any of the wharfs near London Bridge, on Bristol Quay, or at any of the sea-ports, on the lowest terms, according to the quality of the Slates, and the distance of the conveyance, for *Ready Money only* on the delivery.

PLATE







P L A T E I.



FIG. I. The end of a common rafter, with the slates (A) lying in the rabbits, bedded in cement.

B, the capping-slates, screwed down to the rafter, bedded in like materials.

C, a screw to fasten the capping-slates to the rafter.

FIG. II. The same rafter as Fig. I. the capping of yellow deal, or oak, painted of the colour of slates, and fanded:—This will do for garden-walls, or detached buildings.

B

C,

C, a screw to fasten the capping down to the rafter.

FIG. III. A gable-end rafter, the slates (A) bedded in cement, in the manner of Fig. I.

E, the capping-slate bedded in like manner, and screwed to the rafter.

F, a perpendicular slate, bedded in cement, and screwed to the side of the rafter, to cover the purlins and edge of the said rafter.

G, screws to fasten the capping-slates.

FIG. IV. The end of a rafter to any roof of a circular form.

A,



A, the slates bedded in cement.

G, a capping of lead, bedded in like manner, and screwed down to the said rafter.

H, the screw.

FIG. V. A hip-rafter.



A, the slates bedded in cement.

I, the capping-slates mitred together, bedded in like manner, and screwed to the rafter.

H, the top of the purlins fastened to the hip.

K, the hip to receive the rafter.

FIG. VI. The end, and part of the front, of a garden-wall.

B 2

K,

K, the wall-plate.

L, a piece nailed under the rafter M,
and filled between each rafter
with brick, stone, or mud wall.

M, a solid rafter, rabbited deep enough
to receive the thickness of one
slate, nailed to the plates K.

N, the capping-slates bedded in ce-
ment, and screwed down to the
rafter M.

O, the ridge-roll of wood, let down
the thickness of the capping-
slates over each rafter, bedded in
cement, and nailed to the rafters
through the centre of the ridge-roll.*

PLATE

* See Plate III. at large.

N. the well-known



the cap of the

men and the

refers to

O, the ridge of

the thickness of

flats over each

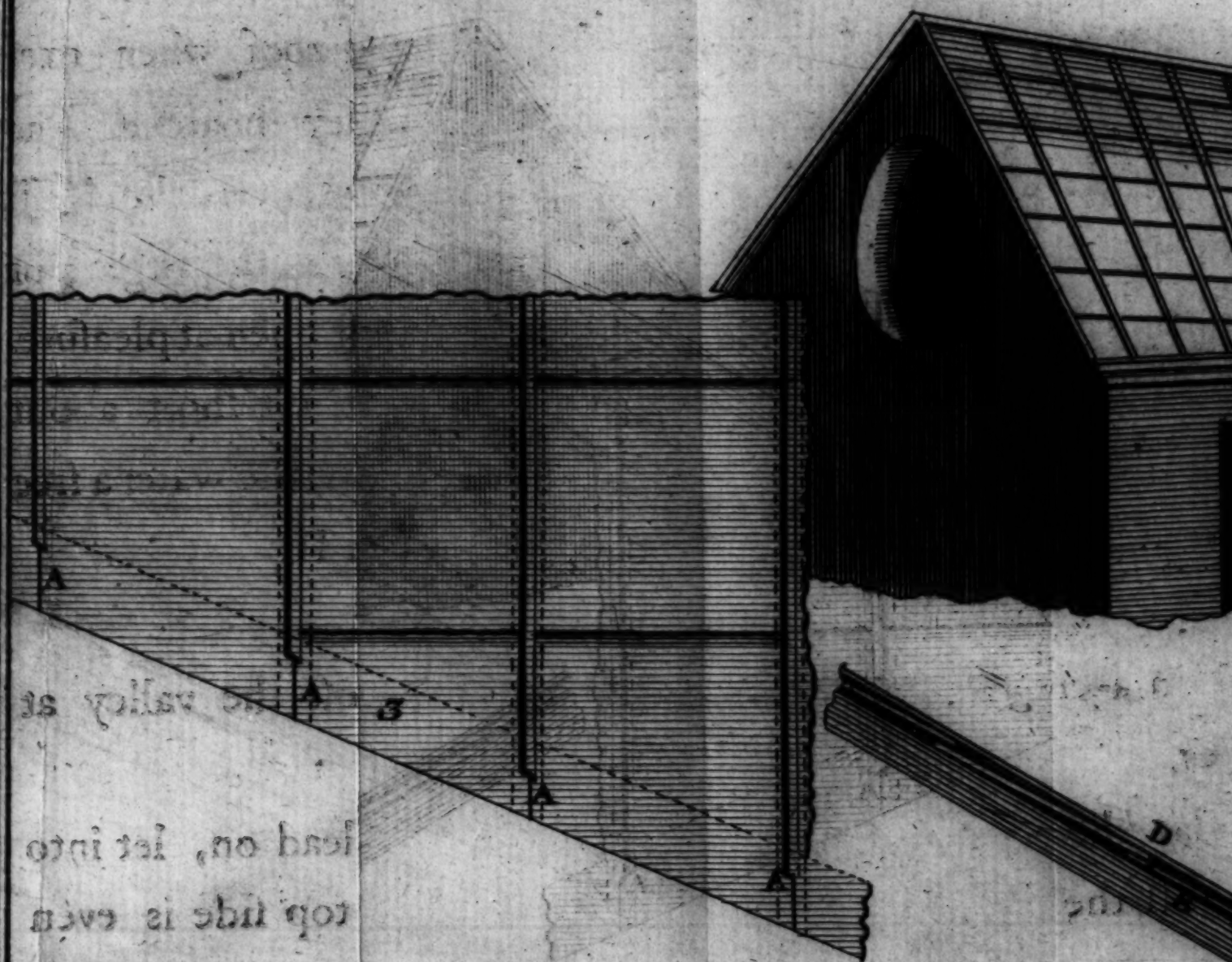
concrete, and

through the centre of the ridge

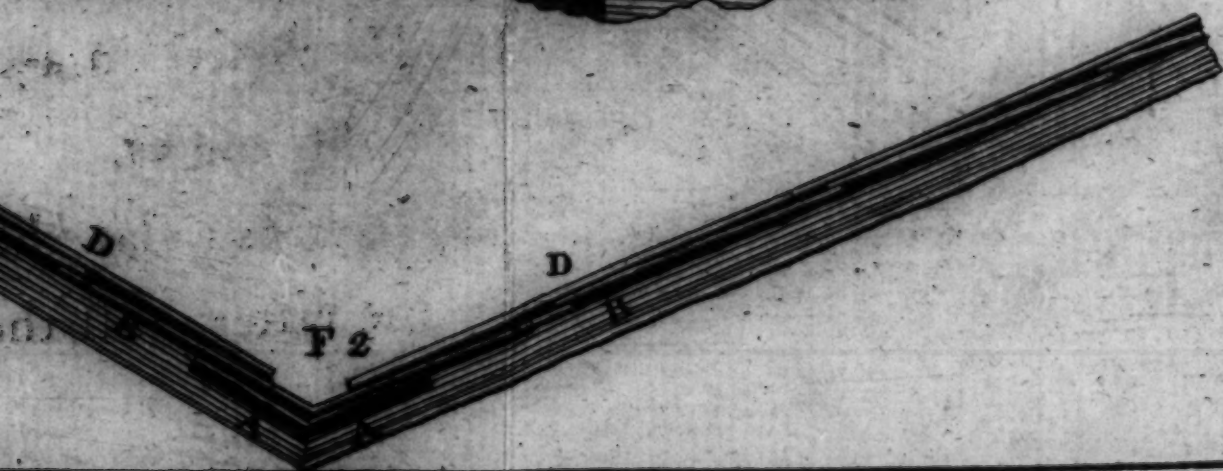
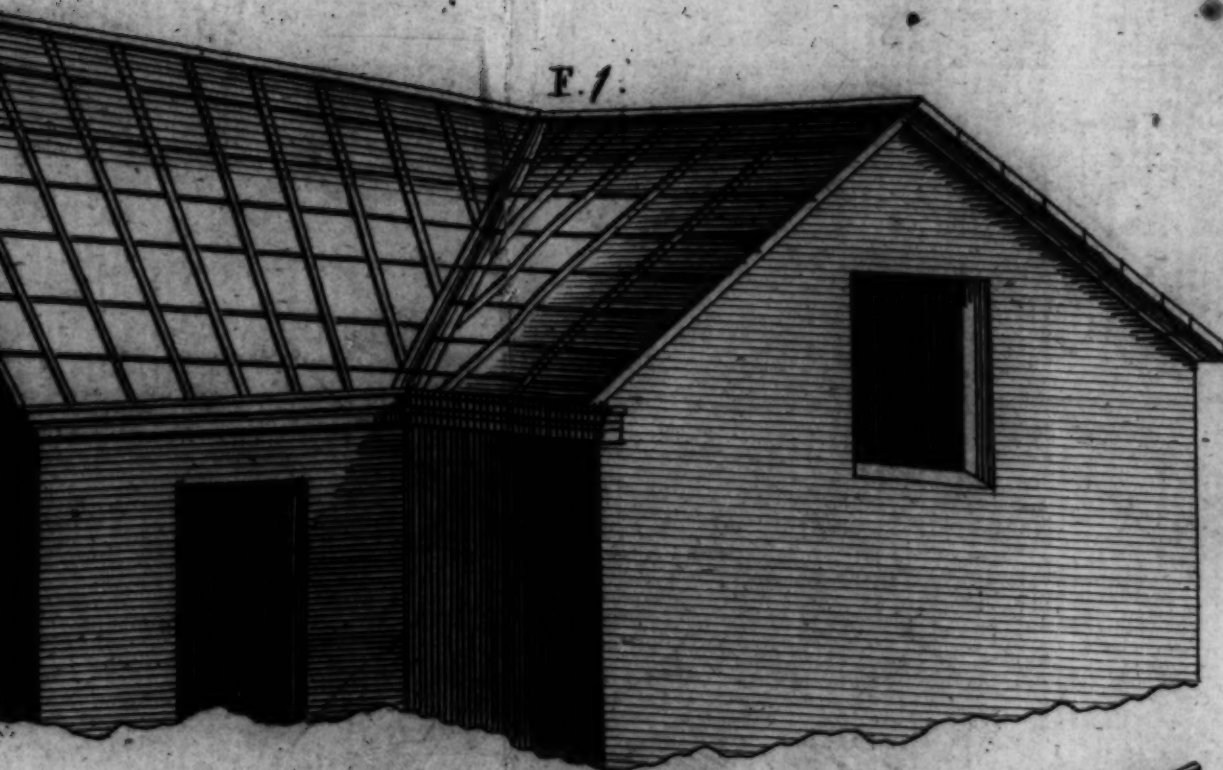
Fig. 1

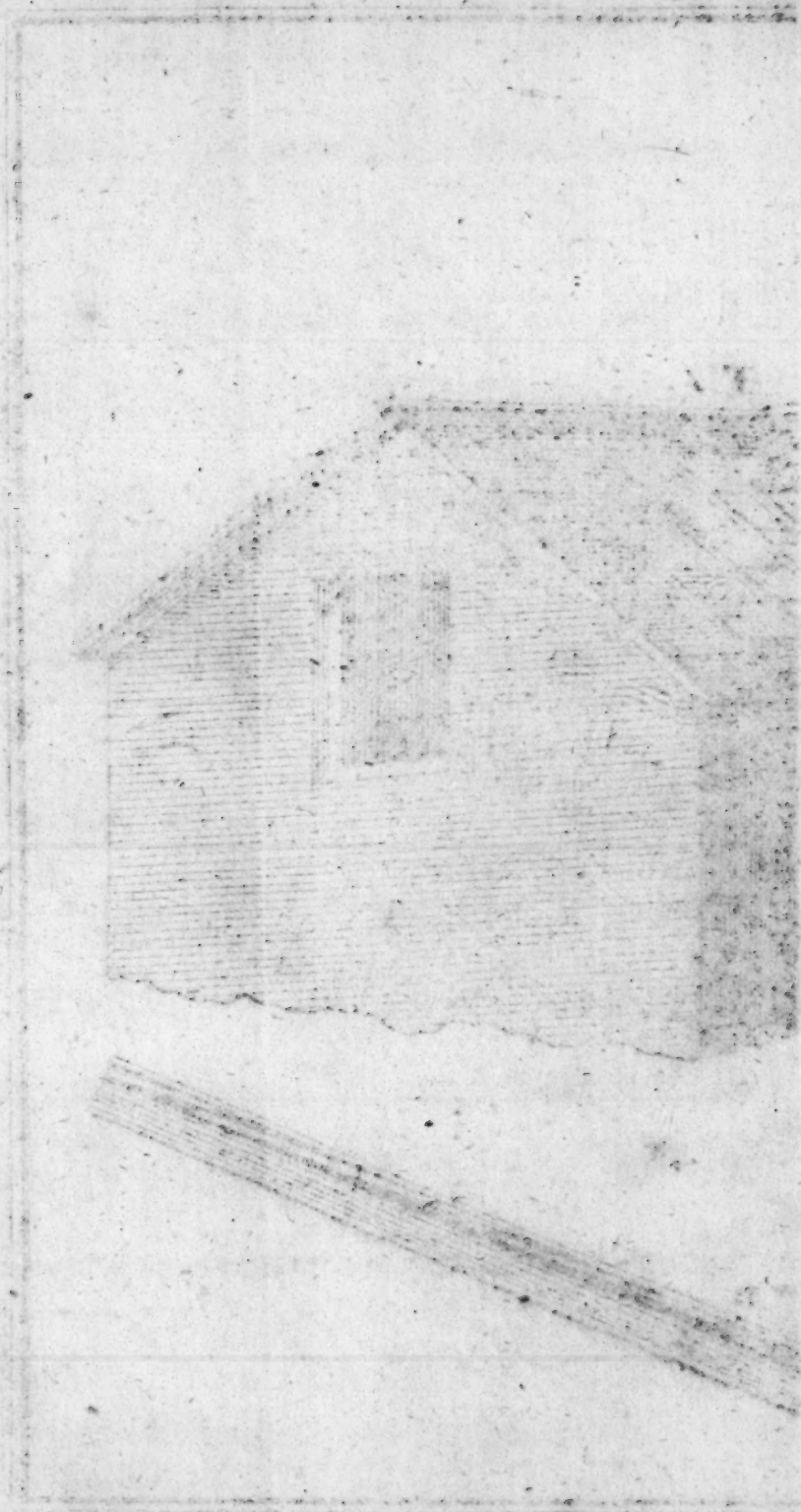
* See Plate III. at large

Plate 2.



is yellow
 and on, let into
 top side is even
 with





F

P L A T E II.



FIG. I. A valley and roof when executed; the valley boarded and leaded. The slate covers the lead, and mitres together in the angle; or the valley to be left open at pleasure. The capping-slate left short about three inches, to give the water a free passage, as at Fig. II.

FIG. II. A section a-cross the valley at right angles.

A, boards to lay the lead on, let into the rafter, till the top side is even with

with the bottom of the rabbit of the rafter.

B, the rafter.

C, the slate lying in the groove.

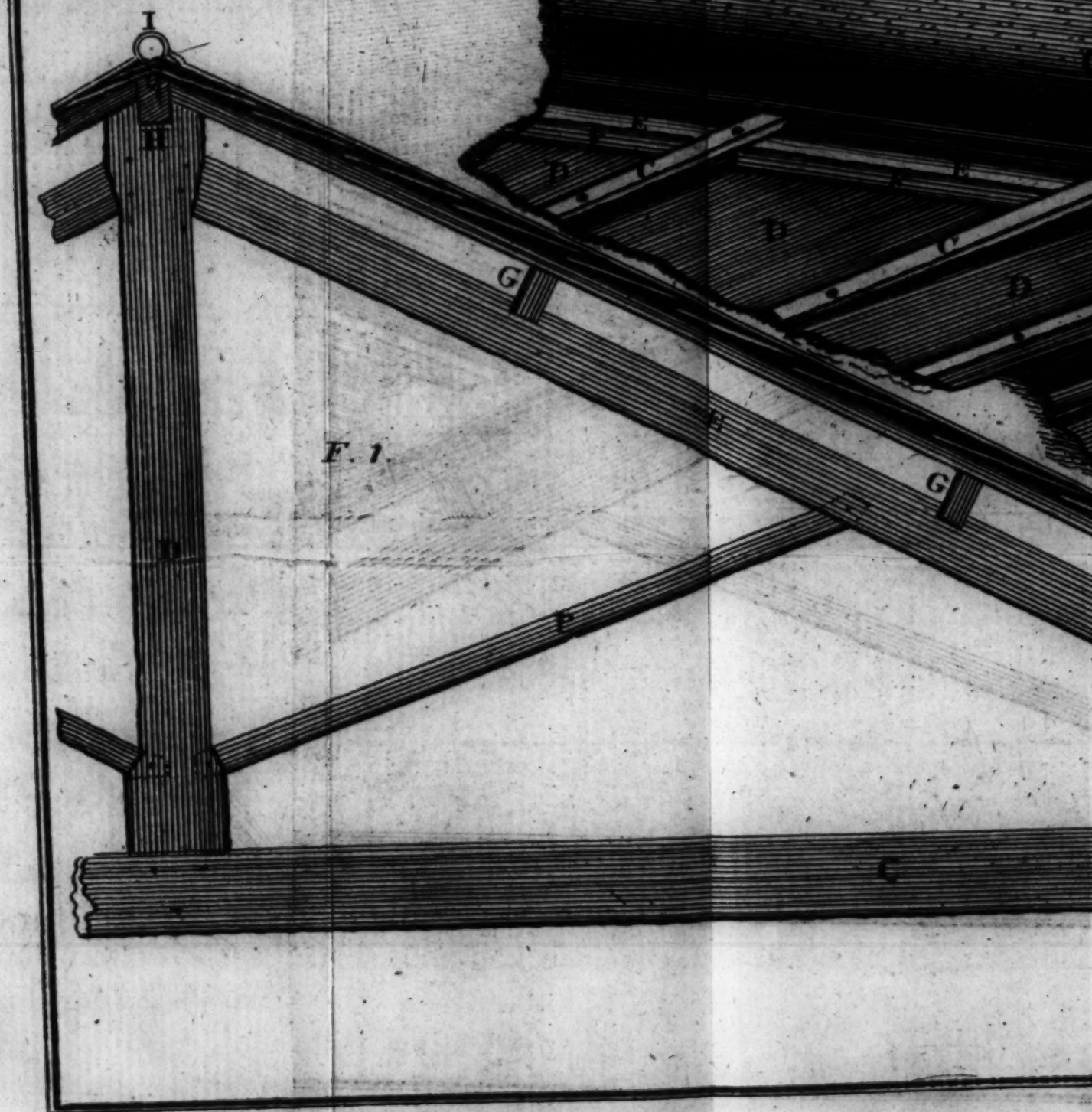
D, the capping-slate.

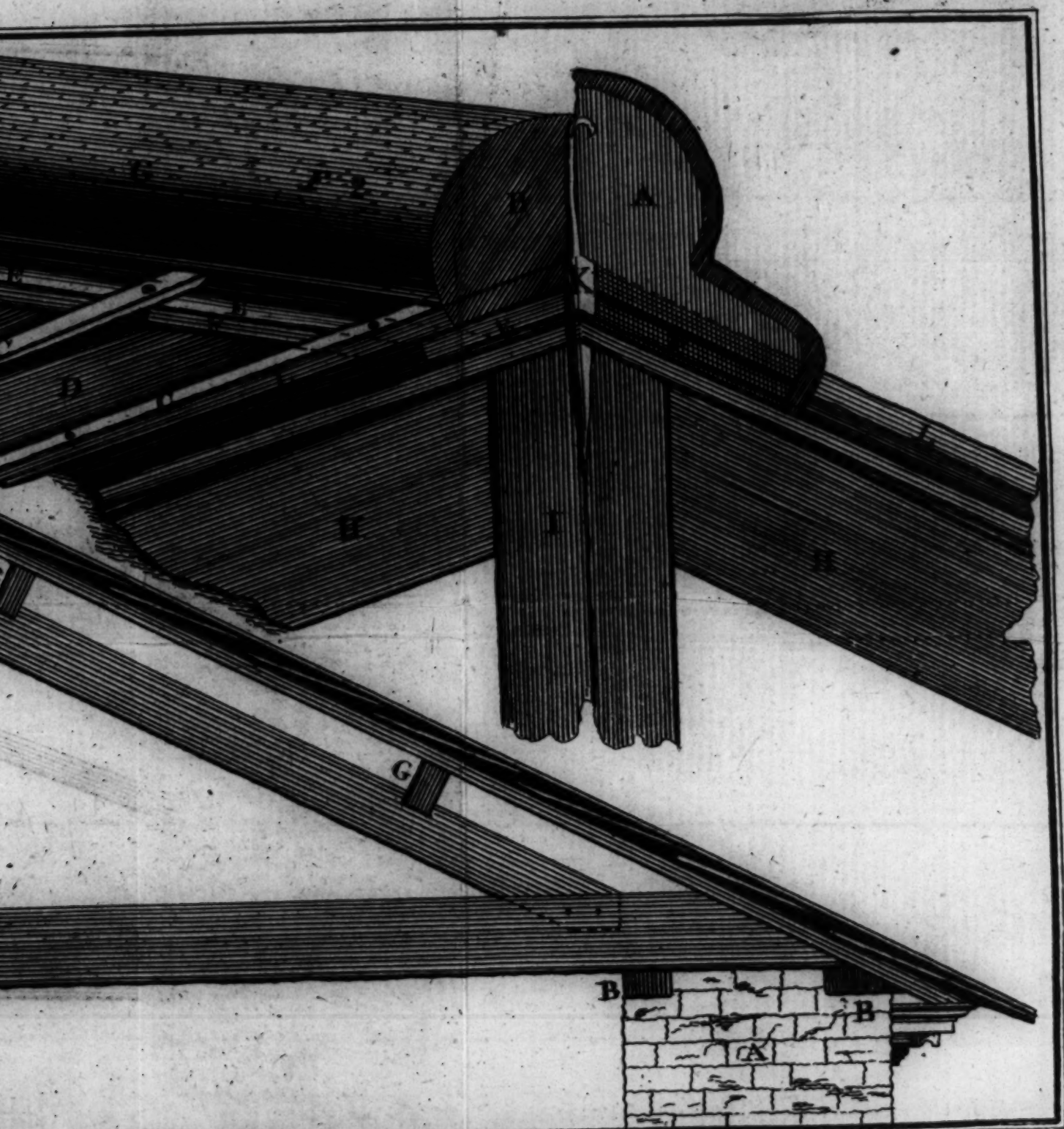
FIG. III. The manner of cutting the valley-slates that lie on the gutter-board to join each other, if the lead be covered, as at A: if the lead-gutter be left open, then the capping-slate will come down as low as the covering-slates: nevertheless, the covering-slates must be cut to join each other as much as laps over the lead-gutter, and bedded upon the lead in cement.

PLATE



Plate 3.





FIG

A
B
C
D
E
F
G
H
I,

FIG

E



PLATE III.

FIG. I. Half a trussed roof, spanning twenty-four feet.

A, the wall.

B, the inside and outside wall-plates.

C, the beam.

D, the king-post.

E, the principal rafter.

F, the brace.

G, the purlins.

H, the ridge-piece.

I, the ridge-roll.

FIG. II. The manner of finishing the ridge of a roof.

A,

- A, a wood ridge-roll covered with lead.
 B, a wood ridge-roll painted and fanded.
 C, the capping-slates going under the ridge-roll, and mitred at the top.
 D, the slates as they lie in the rabbits.
 E, Part of a slate added on the slate D, to fill the rabbit of the rafter to the under side of the capping-slates.
 F, the thickness of the slate E.
 G, the ridge-roll painted and fanded, let down between the capping-slates till it touches the covering-slate E.
 H, the rafter.
 I, the ridge-piece.
 K, the nail to fasten the ridge-roll.
 L, the thickness of the capping-slates.

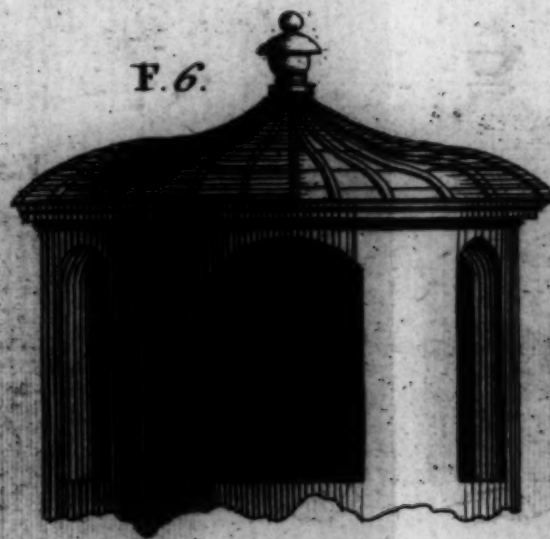
P L A T E

A, a wood block
 B, a wood block
 C, a wood block

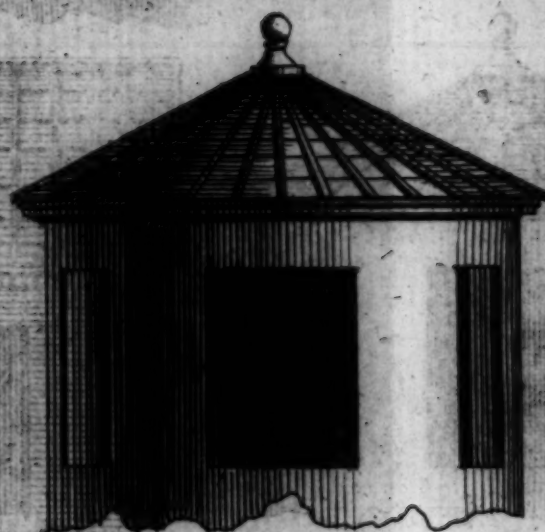


F, the ridge
 G, the ridge
 let down between the ridge
 till it touches the
 H, the ridge
 I, the ridge
 K, the nail to fasten the
 L, the thickness of the

Plate. 4.



F. 3.



F. 2.



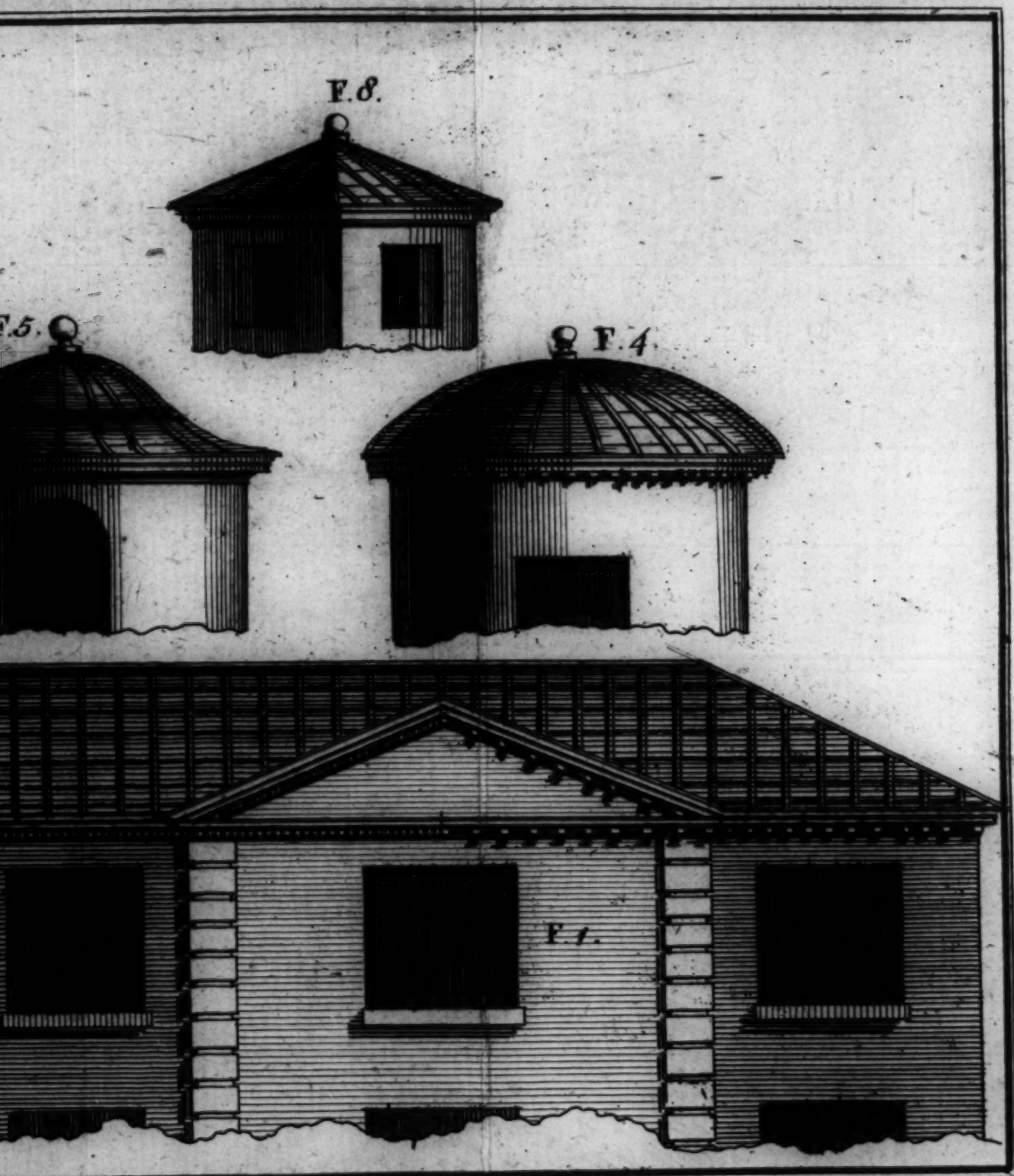


FIG.

FIG.

FIG.

FIG.

FIG.



P L A T E IV

FIG. I. A building covered with flates; one end hipped off; the other end, a gable, with a pediment in the centre.

FIG. II. A circular building, with straight rafters.

FIG. III. An octagon building, with straight rafters.

FIG. IV. A circular building, with a dome.

FIG. V. A circular building, with a cima-recta roof.

C

FIG.

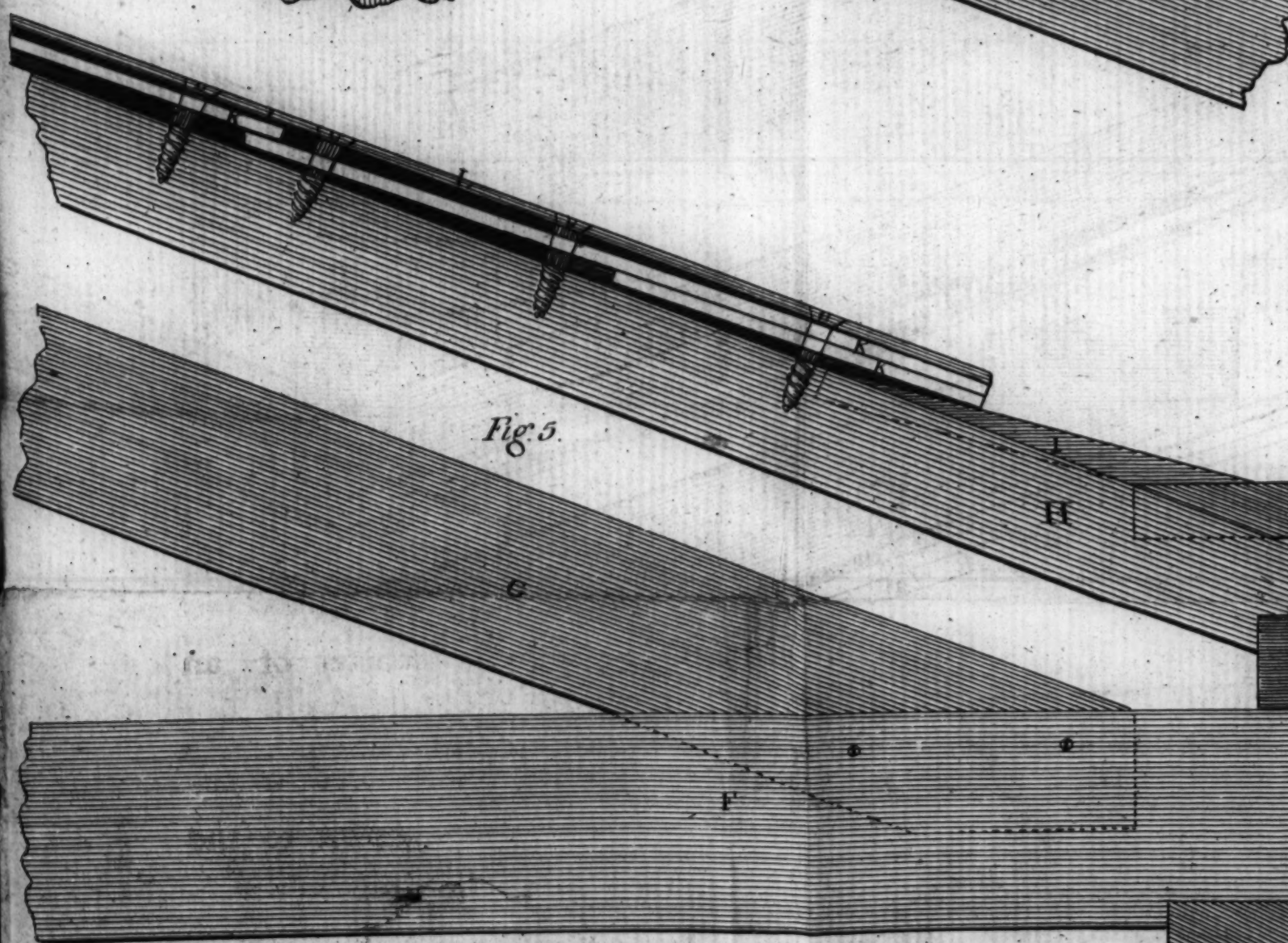
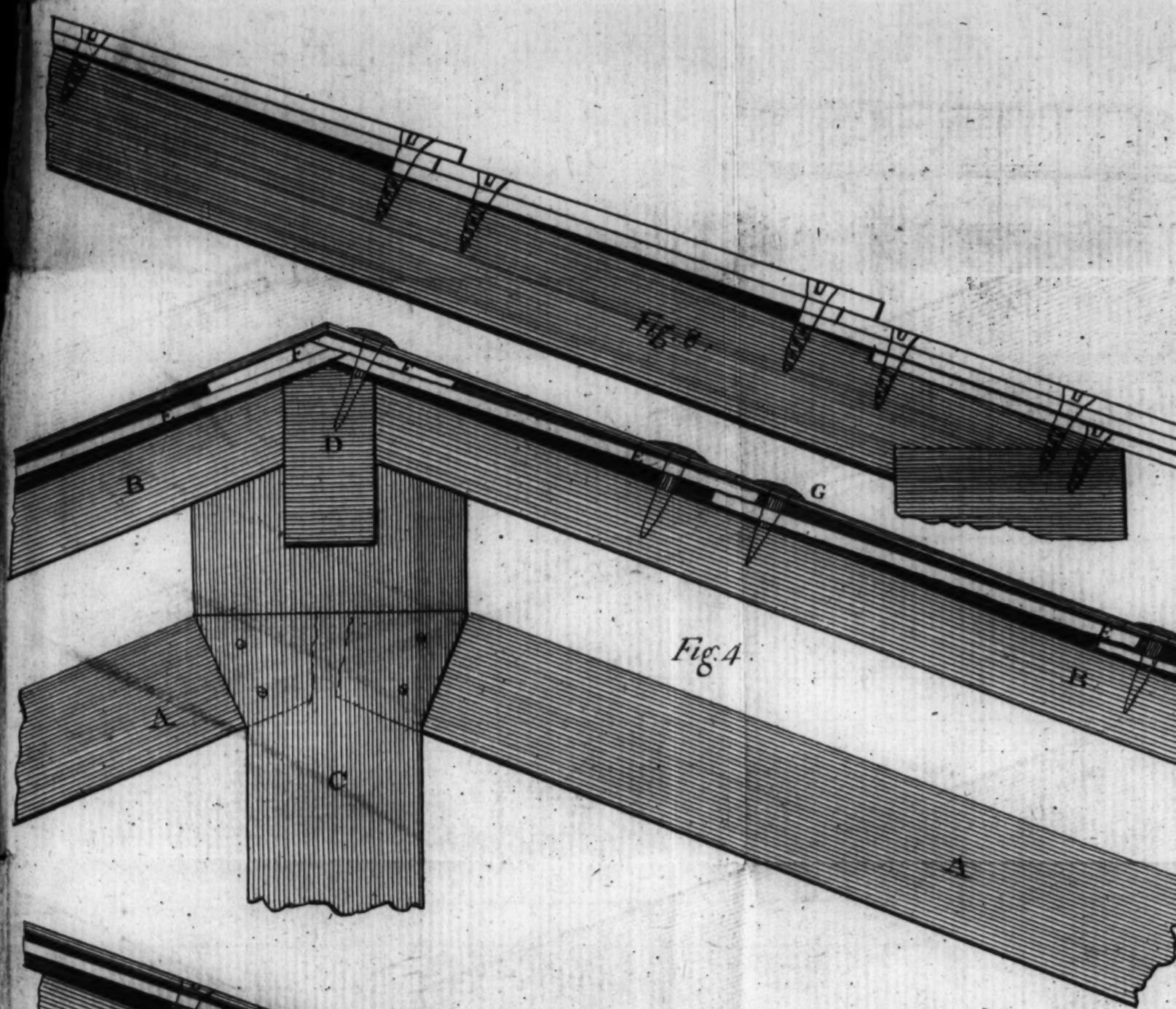
FIG. VI. A circular building, with a cima-reverse roof.

FIG. VII. An octagon building, with a cima-reverse roof.

FIG. VIII. A triangular building, with a straight-rafter roof.

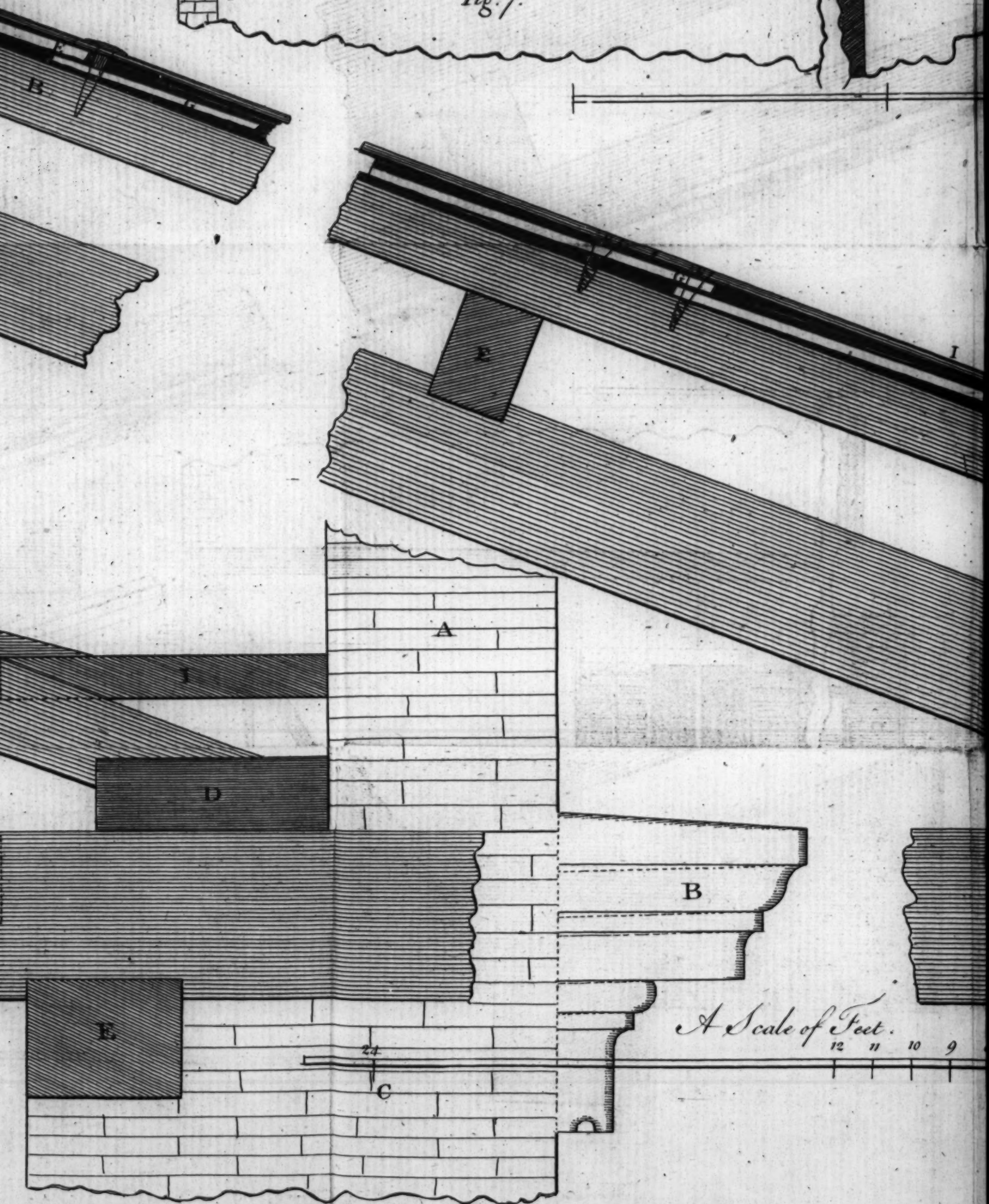
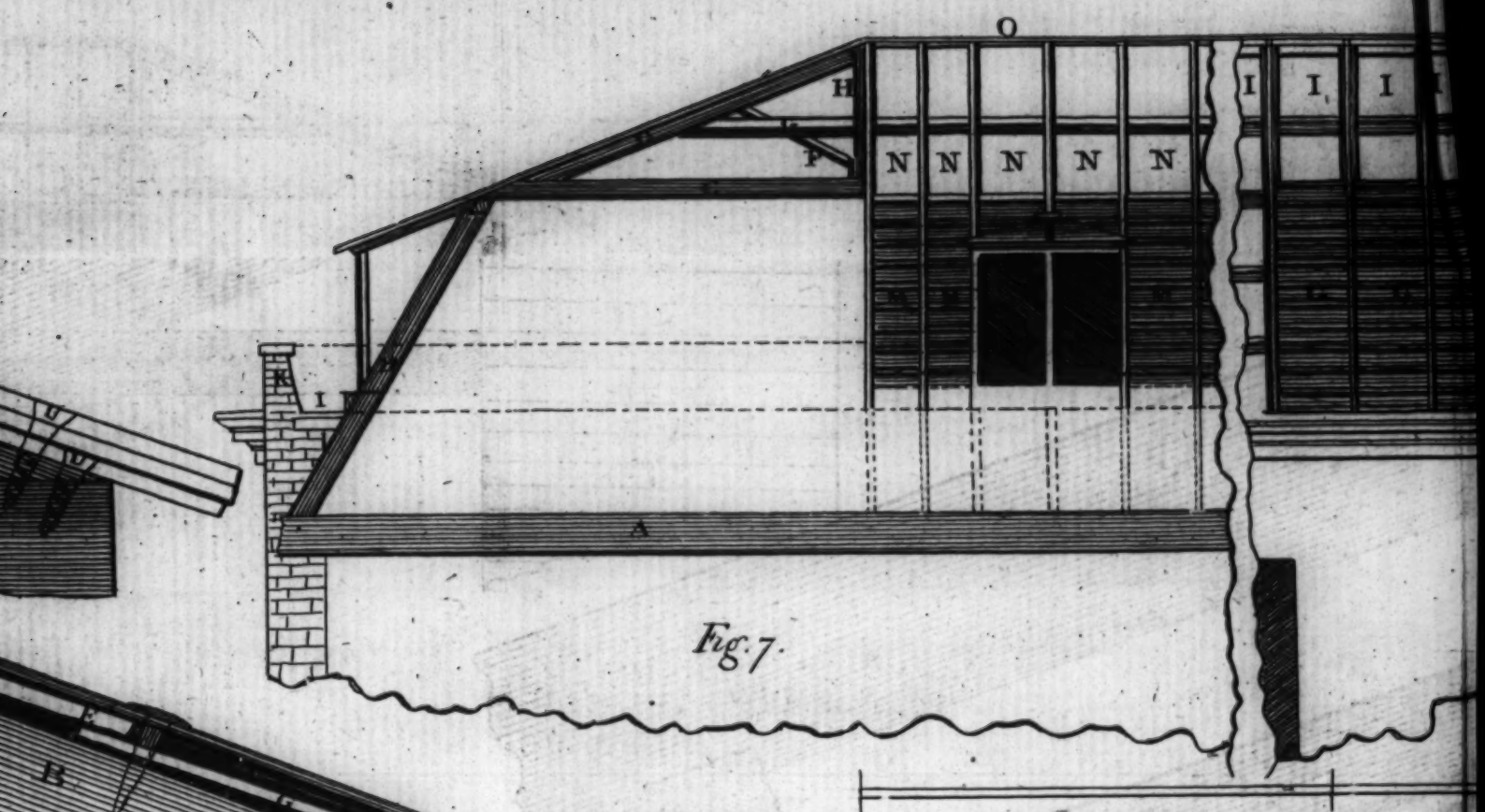


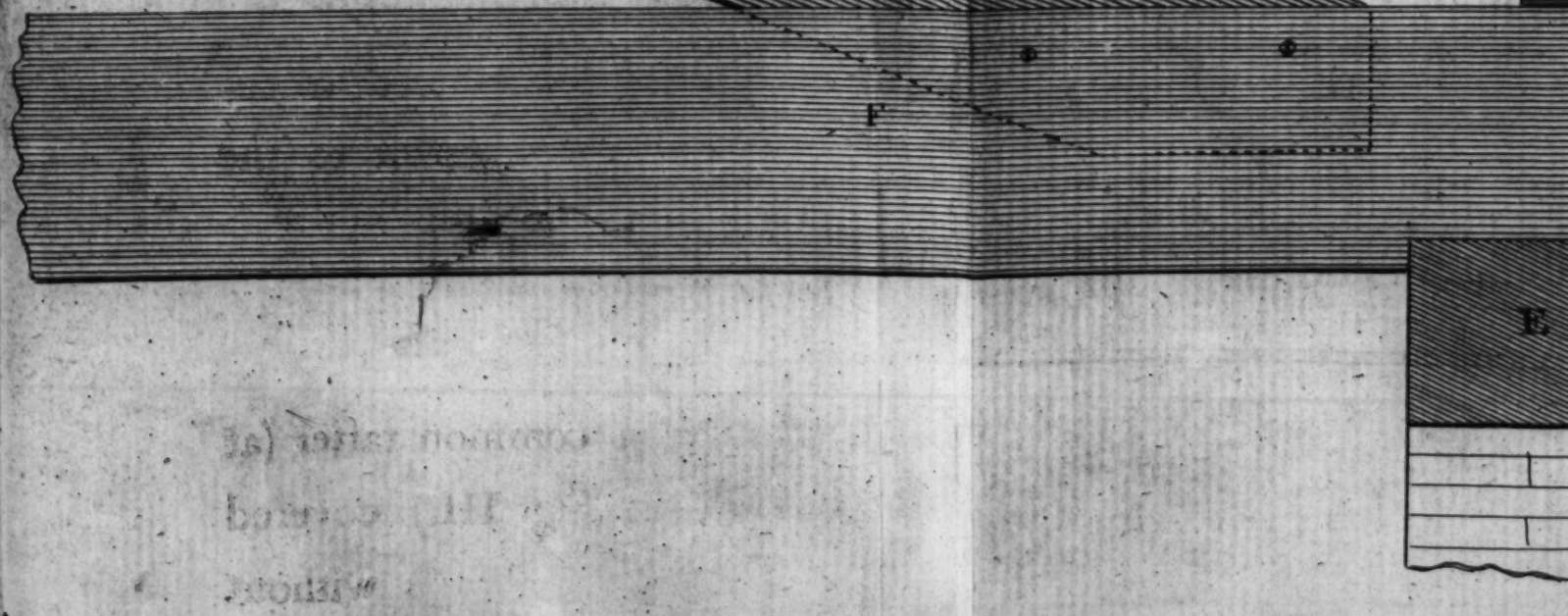
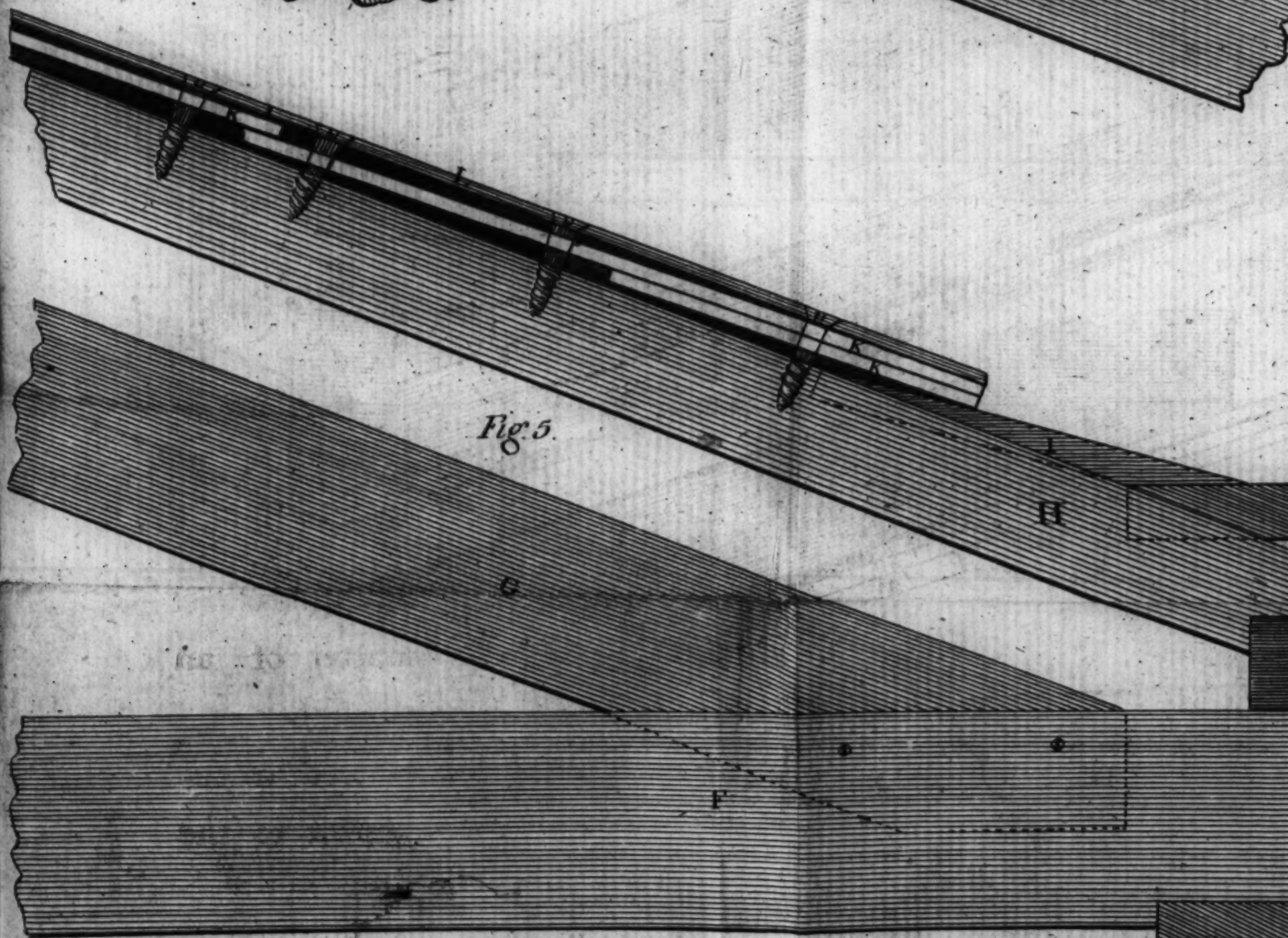
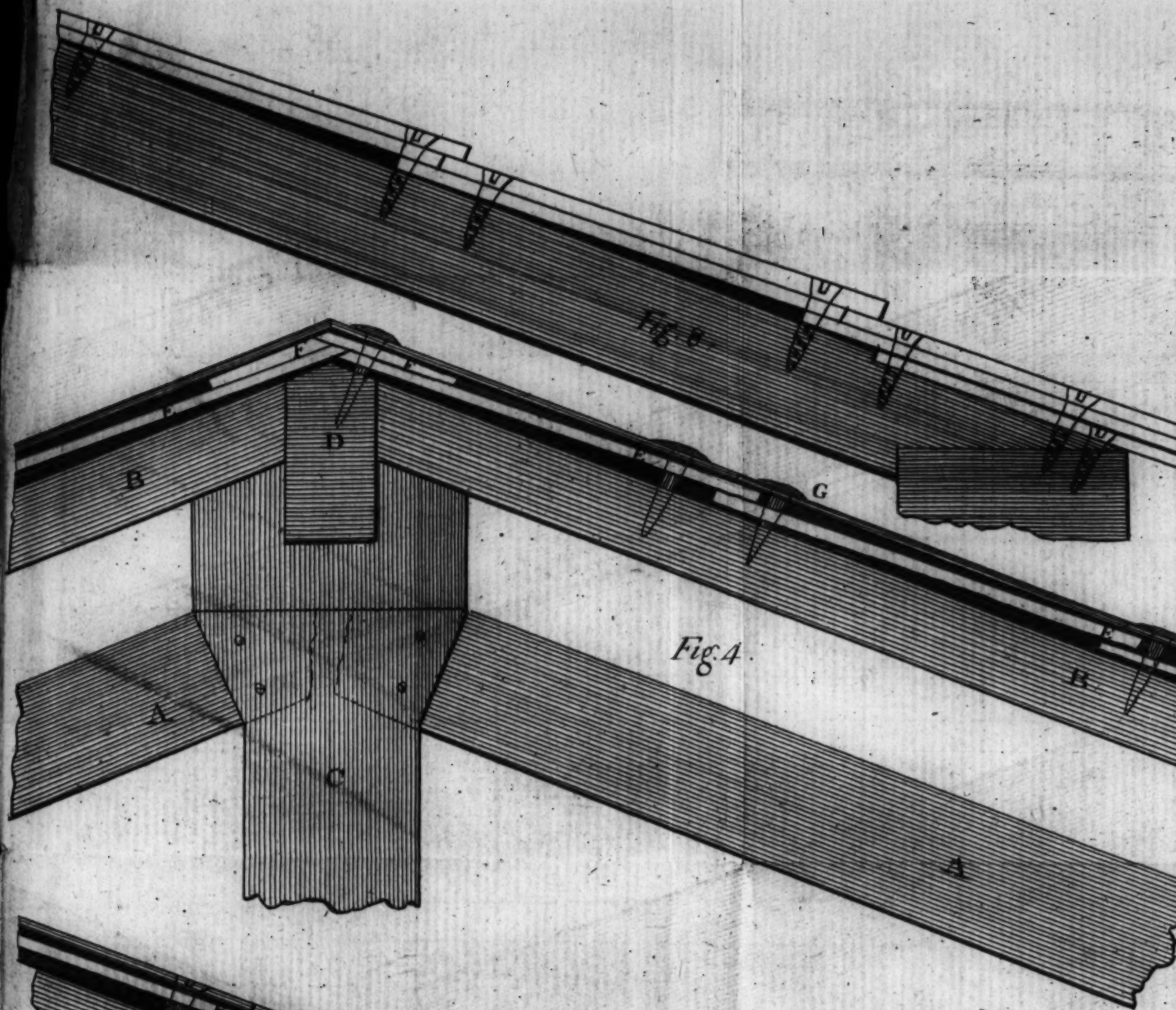




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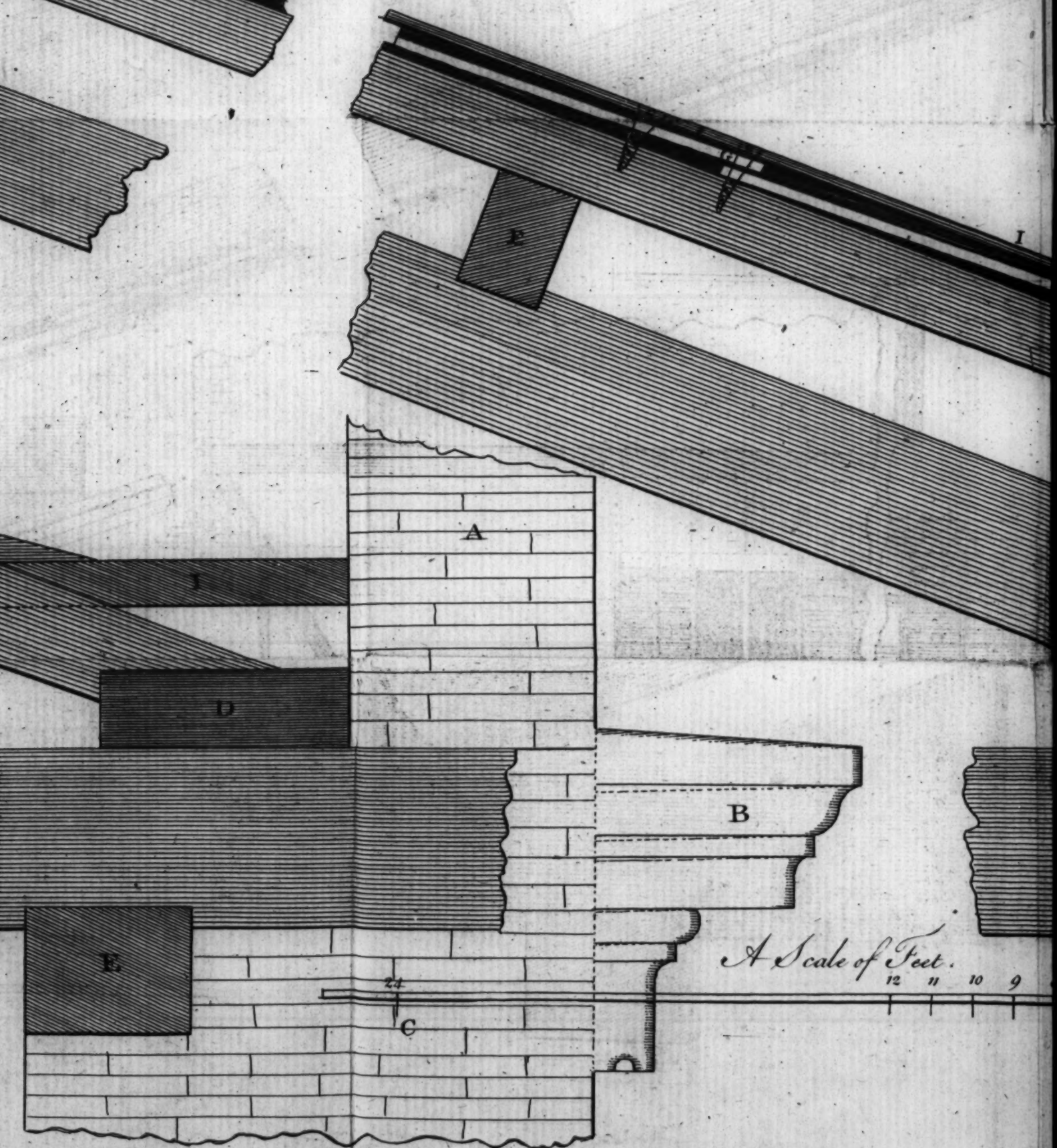
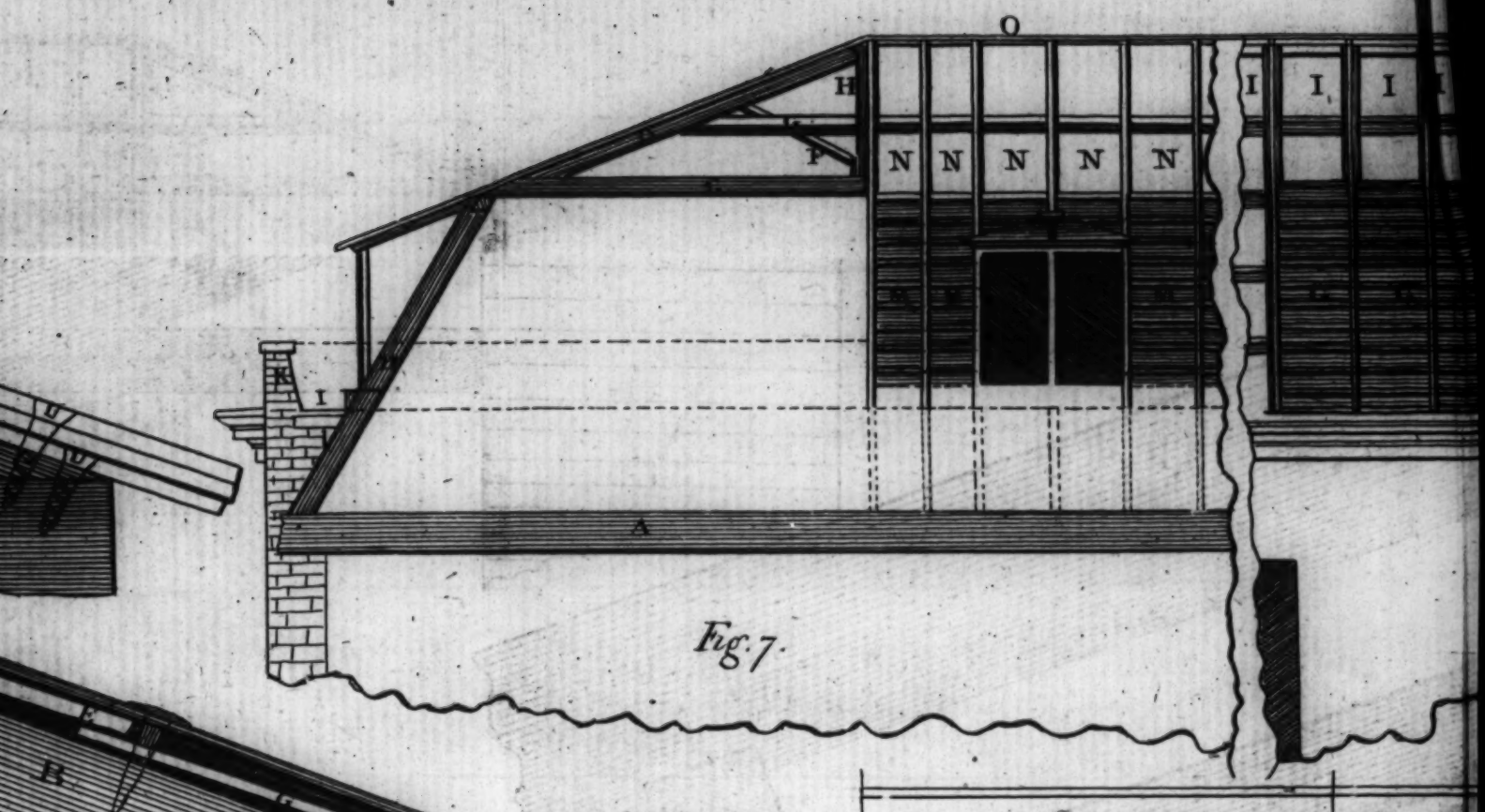






Is) first horizontal
beam of the
truss





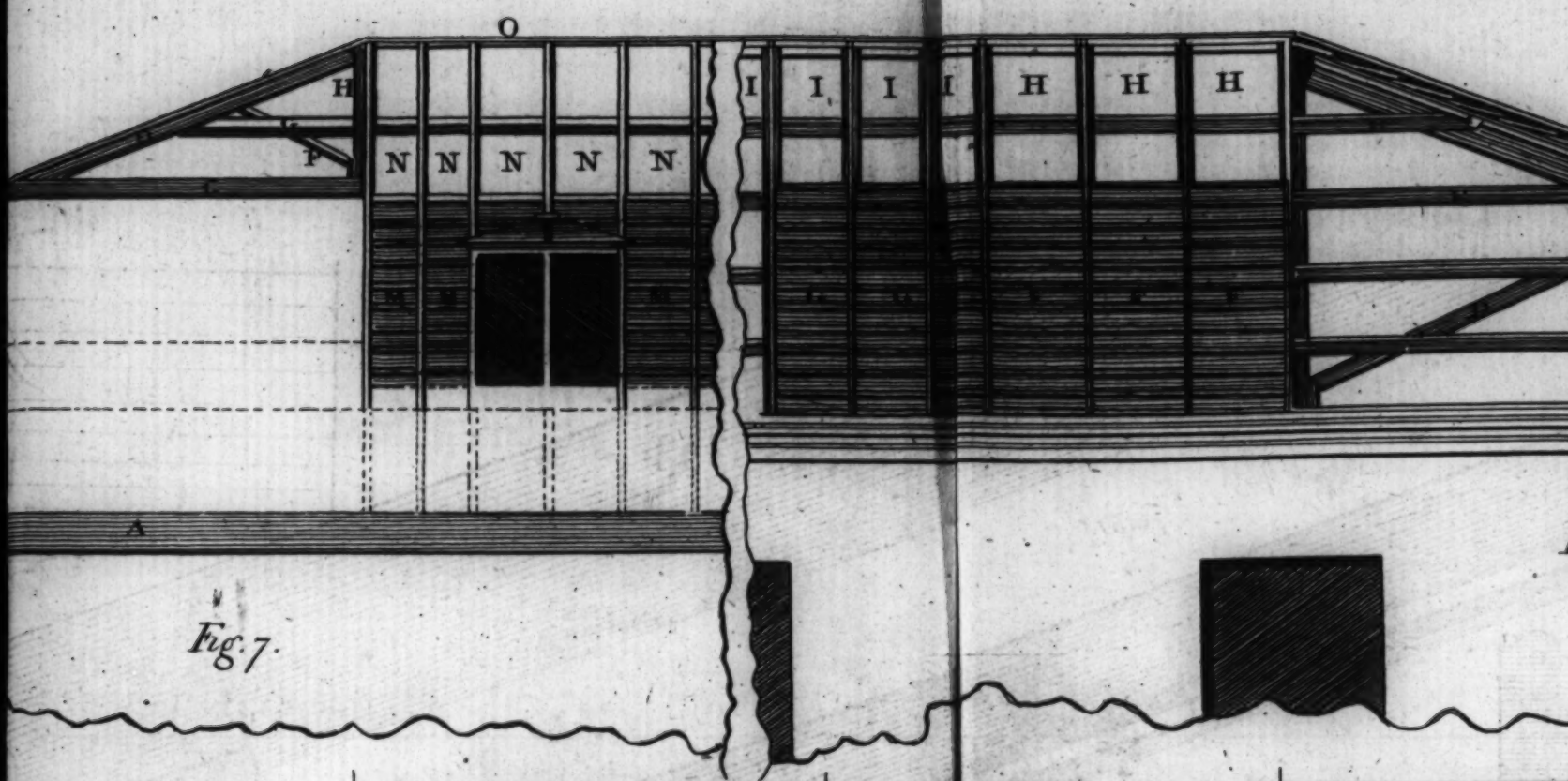


Fig. 7.

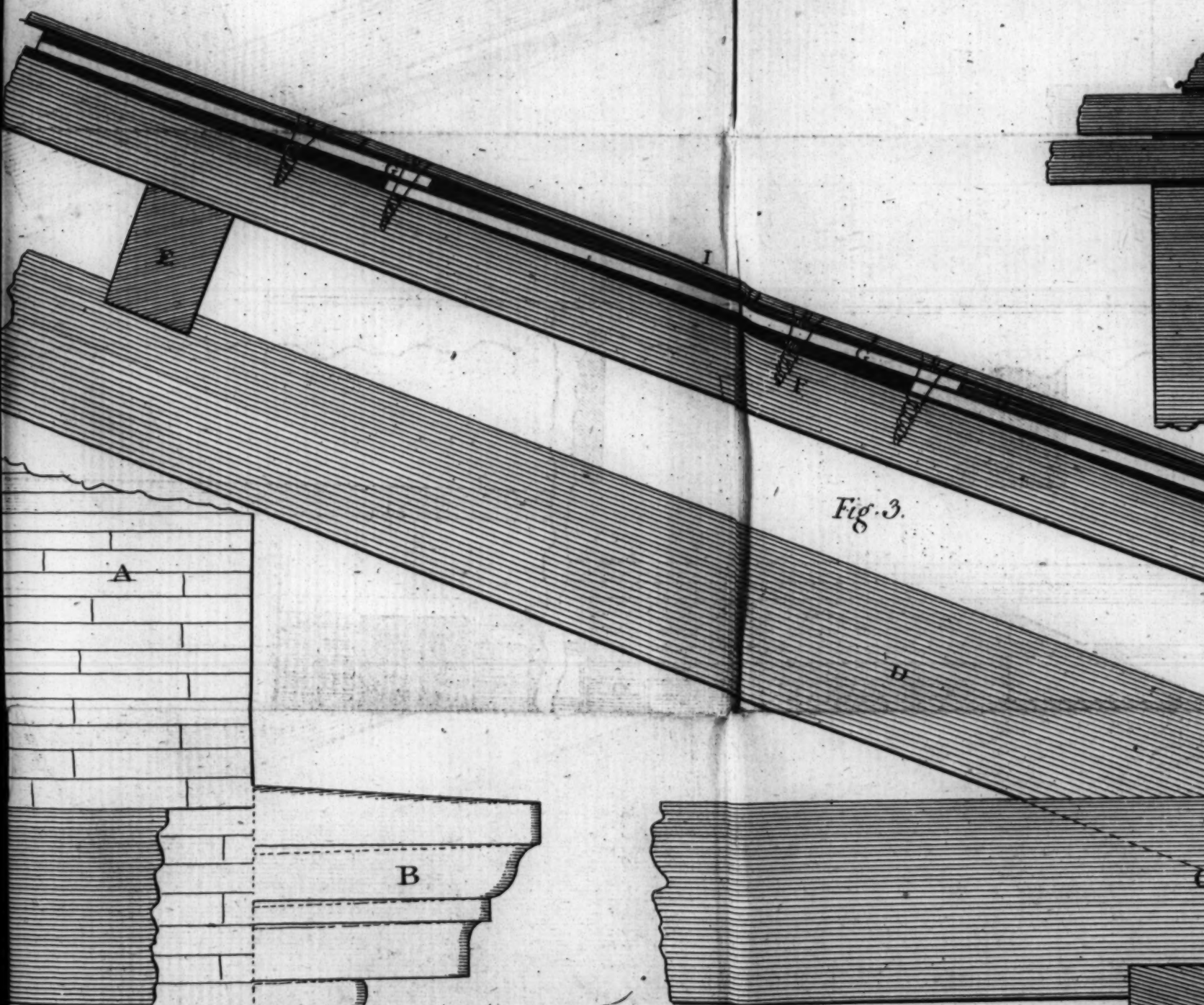
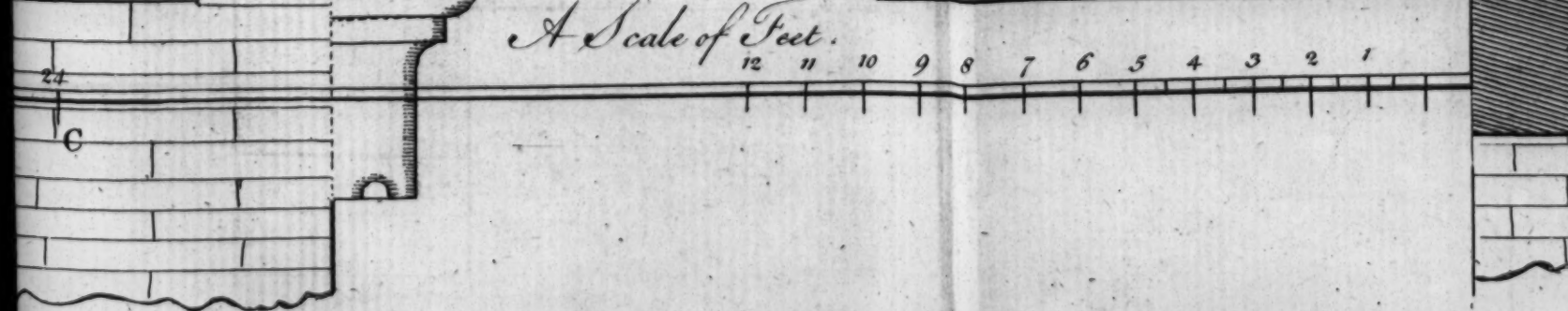
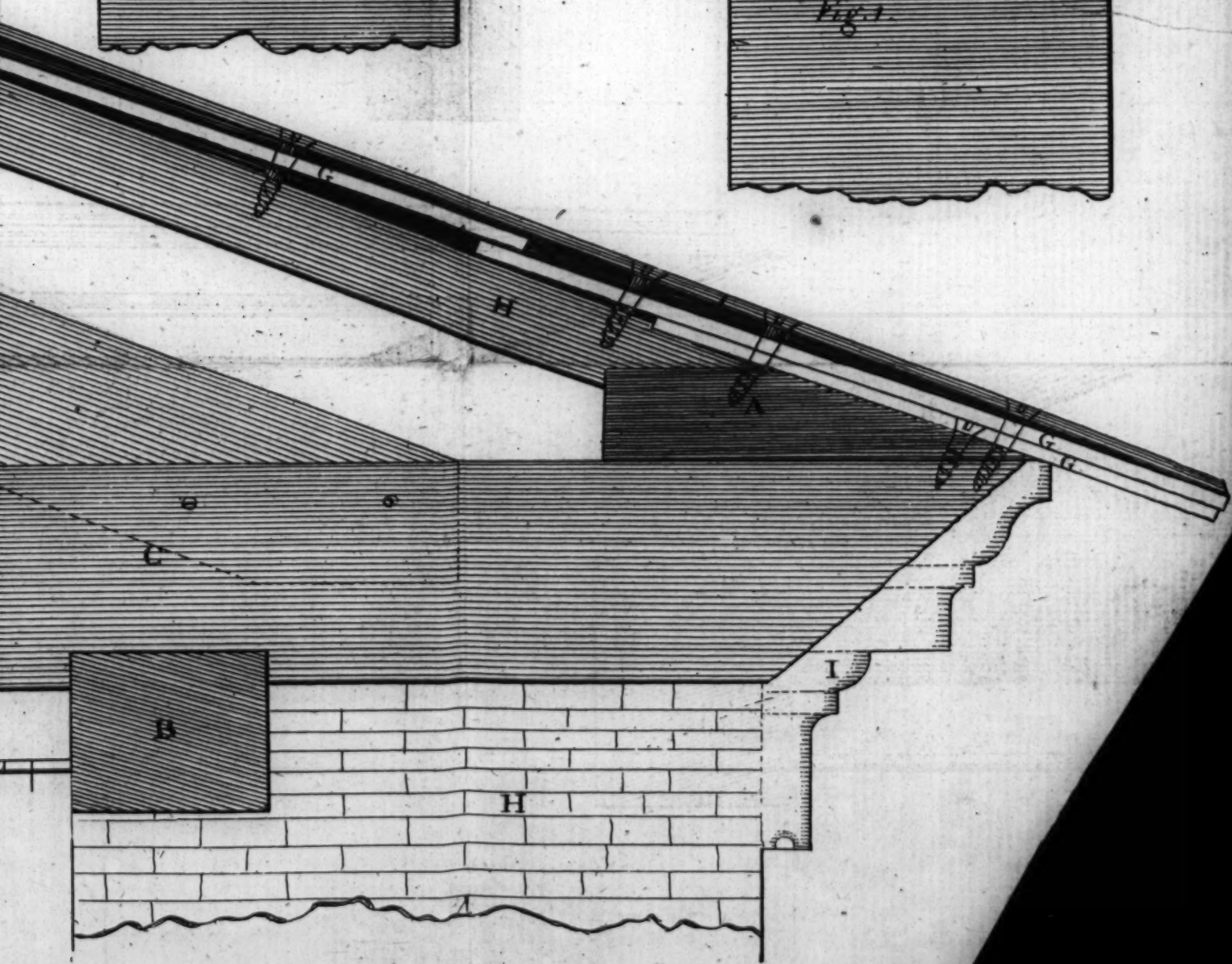
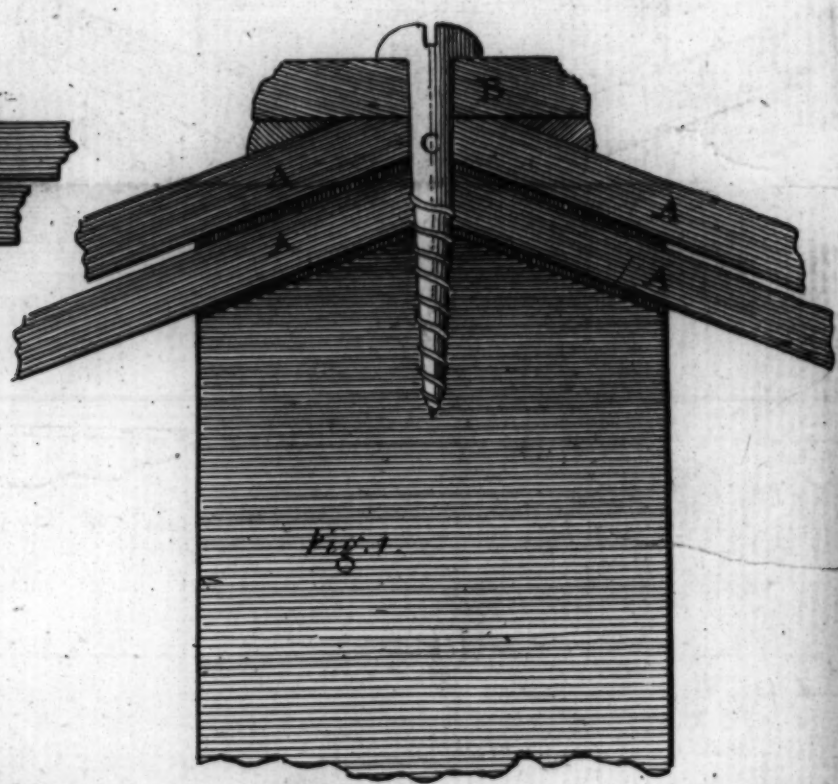
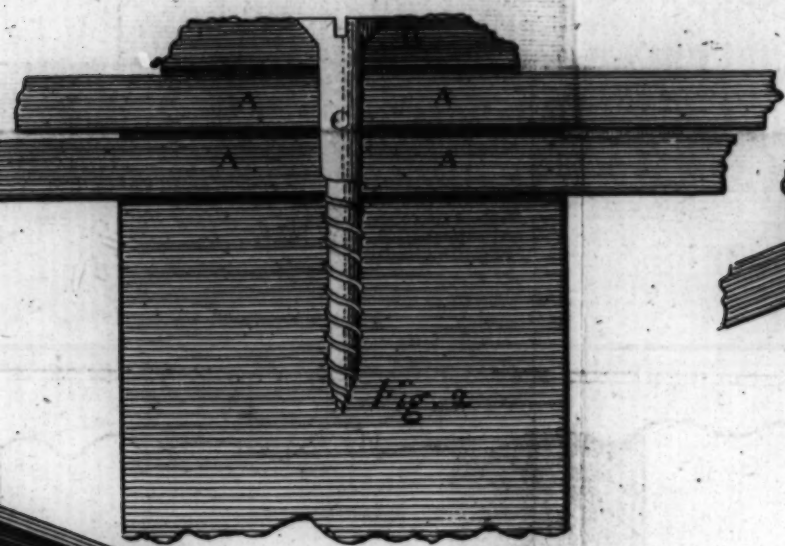
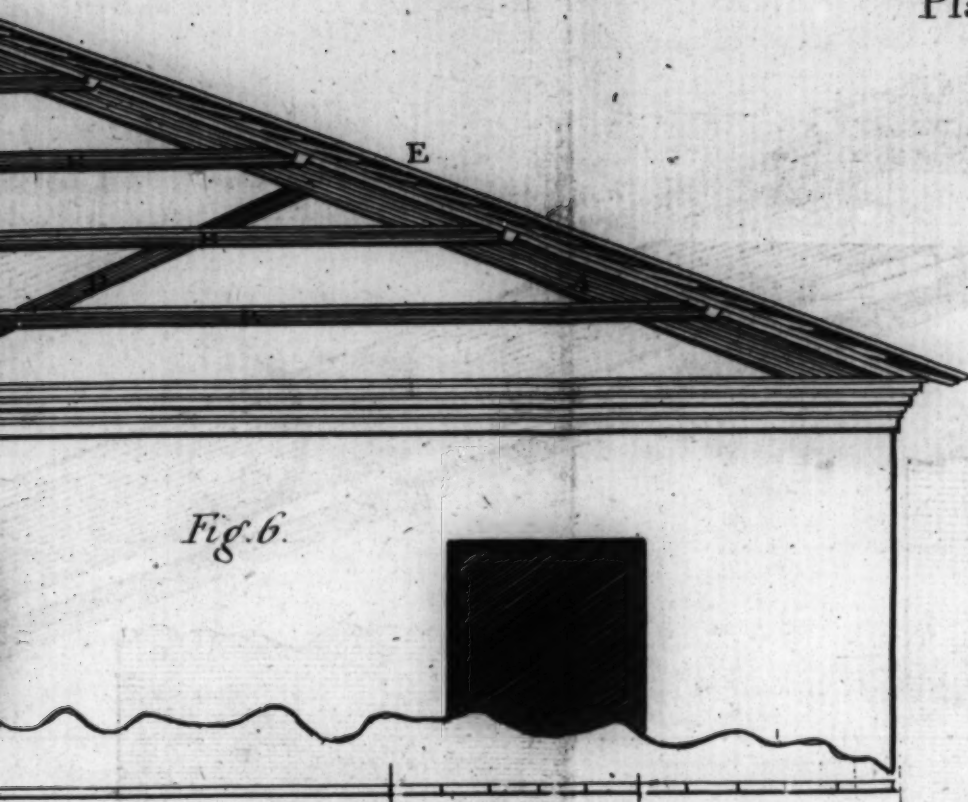


Fig. 3.



A Scale of Feet.



FIG

A

B

C

FIG

A



P L A T E V.

FIG. I. Section of a hip, with the capping-slate that answers the purpose of lead.

A, the slates meeting each other on the hip within a quarter of an inch, and bedded in cement.

B, the capping-slate, bedded in cement, and screwed down to the hip.

C, the screw.

FIG. II. Section of a common rafter (at the line H in Fig. III.) covered without

without rabbiting, as explained in the pages 18, 19, 20, and 21.

A, the slates meeting each other on the back of the rafter within a quarter of an inch, bedded in cement, and the quarter-inch vacancy filled with cement.

B, the capping-slate, bedded in cement, and fastened to the rafter by the screw C.

FIG. III. Section of part of a roof on a large scale, exhibiting more clearly the manner of the slates lying on the rafters.

A,



A, the outside wall-plate to fasten the rafters to.

B, the inside wall-plate.

C, the roof-beam.

D, the principal rafter.

E, the purlin.

F, the common rafter.

G, the slates lying on the rafter.

H, the cement.

I, the edge of the capping-slate.

FIG. IV. Section of the upper part of the same roof, shewing the manner of covering the ridge without lead.

A, the principal rafter.

B,

B, the common rafter.

C, the king-post.

D, the ridge-piece.

E, the slates.

F, a slate about four inches wide, lapping over the slates E; which may be mitred at the centre, or lap over each other, as described.

G, the capping-slates nailed down to the rafters,

FIG. V. Section of part of a roof, with a gutter, and a blocking-course or parapet.

A, the parapet, or blocking.

B, the cornice.

C,

C, the wall.

D, the outside wall-plate to foot the common rafter upon.

E, the inside wall-plate.

F, the roof-beam to frame the principal rafters into.

G, the principal rafter.

H, the common rafter.

I, the gutter-boards.

K, the slates lying on the rafter.

L, the capping-slate, screwed or nailed down.

FIG. VI. A roof shewing the principal timbers, &c. part of which is covered with slates.

A,

- A, the principal rafter.
- B, the purlins.
- C, the king-post.
- D, the brace.
- E, the common rafter.
- F, the part flated, the rafters rabbited.
- G, flating; the rafters not rabbited.
- H, the rabbited rafter above the flating.
- I, the plain rafter above the flating.

FIG. VII. A curb roof with a dormer window; the top of which is continued in a line with the upper part of the roof, and covered in the same .

same manner; the sides with upright flates.

A, the floor-beam; the lower rafters framed into it.

B, the lower rafters.

C, the upper roof-beam.

D, the principal rafters framed into it.

E, the rafter over the dormer window.

F, the brace.

G, the purlin.

H, the king-post.

I, the gutter-plank.

K, the blocking-course, or parapet-wall.

L,



L, a dormer window with a roof
hipped off at the corners.

M, part of the roof covered with slates.

N, the rafter left plain.

O, the ridge-piece.

FIG. VIII. A different manner of laying
on the capping-slates, when the
rafters are not rabbited.

The common slates lying as repre-
sented in Fig. III.

The capping-slates bedded flat on the
common slates, lapping one inch
over each other in manner of the
common slates, laid in cement, and
screwed to the rafter, as before
directed.

The

*The Manner of executing the Patent
Covering of Houses, &c. with large
Slates, known by the Name of
Rags.*

THE timber rafters must be planed to one inch and seven eighths wide; and each rafter rabbited deep enough to contain two thicknesses of any sort of slate the roof is to be covered with, and five eighths of an inch wide; leaving a piece in the middle of the rafter five eighths of an inch wide, to receive the screws that fasten down the capping-slates. Each rafter must be painted over with lead

and oil, and dried before it be used.

The slates, or rags, must be squared all round to some certain dimensions, such as they will admit. The two sides, and the lower edge, which will lie in the cement, must be painted with one coat of lead and oil, and stand till they are dry, before used. It will be necessary to square the sides and the upper edge, keeping that side of the slate upward you intend to have so when in work. The lower edge should be squared reverse.

Lay

Lay a double row at the eaves, either with a gutter or without; which will the more effectually prevent damage, by the feet if there be a gutter, and by ladders if there be none.



The timbers and slates thus prepared, and sorted to the breadths and lengths, proceed in the following manner:

Middle the length of the building, setting off from the middle line half the length of your largest slate each way: then fixing each rafter to the wall-plate and purlins, at such distance that the slates may fit between the
rabbits,

rabbits, proceed in like manner to fix the other rafters to the next largest slates, till the whole length of the roof be completed.

Begin at the middle and largest row to lay in the slates, first filling your rabbit with one of the under-mentioned cements, to the breadth of the first or under slate; which will do at eight inches wide if a gutter; if a dropping-eave, it should be a foot wide at least. This first slate, at the upper edge, should be sunk a little deeper than the rabbit, to prevent the slate that lies over it from touching the upper edge. Being well bedded in cement, and screwed
down

down at the lower edge to the nose of the cornice or gutter-board, and in the rabbit; lay the broadest eave-slate you have over it (filling the rabbits first with cement, and putting cement over the lower edge of the first slate); and then rub this slate down, that as little cement may remain under it as possible. The upper slate of the eave must likewise be screwed to the rabbit of the rafter.

Proceed in the same manner with one row on each side the middle.

Then take the next broadest slate to suit your middle row: fill the rabbits with cement in like manner, and laying

laying cement over the higher edge of the first slate one inch down, fix the second slate in the cement, so that it may lap over the first slate one inch, rubbing it well down to the first, and in the rabbit: then drive a small brad under the lower edge, to prevent its slipping down while the cement remains soft.

Proceed in like manner with the row on each side the middle, using the broadest slates first, and diminishing as you cover, till you reach the centre of the ridge; the ridge-stones mitring together, or one lapping over the other to its own thickness

ribs only. Then add on each side, over the last slate, another slate, about four inches wide, lapping, at the centre of the ridge, the contrary way to the under row.

When three rows are in part completed, put on the capping-slate, about one inch and half wide, with holes pierced through about three inches from each end and one foot apart, first laying on a sufficient quantity of cement over the middle part of the rafter, and filling up the rabbits. Then rub down the capping in the cement, as low as possible; and screwing it down to the rafter with inch flat-head screws, fill the screw-holes with cement.

D

This

This done, clean off the cement well, both inside and outside, filling therewith all places that may be found deficient; and paint over the cement, on the outside, with one coat only, of any colour you prefer.

In a town, or inland country, where the storms are not so violent as near the sea-coast, roofs may be covered with great safety in the following manner.

Let your rafters be sawed out, one inch and seven eighths broad, by any thickness the distance of the bearings between the purlins may require :

quire: plane them on the outside only, and paint the same with one coat of lead and oil.



Sink the lower slate to the eave, or gutter, level with the back of the rafter, that the slate above may bed over it.

Let the slates be laid in cement in the manner before described, so as to meet each other on the back of the rafters within one quarter of an inch, taking off the top corner of the lower slate one quarter of an inch in length, and one inch and quarter in depth, to give room for a nail to hold up

the last slate laid, till the capping-slate be laid over them.

Each slate being well bedded in cement, both on the rafter and where they lap over each other, (each lap to be one inch) proceed with three rows, till a sufficient quantity be laid to begin laying the capping-slates.

The capping-slates must be cut and bored as in the other method, bedded in cement, well rubbed down, and screwed to the centre of the rafter, in the quarter-inch vacancy left between the slates on the back of the rafter.

When

When this is done, clean off the cement both from the in and outside, and paint the outside cement, as before directed.

This method will require the screws to be near two inches long, either flat or round headed. Nails may be used insted of screws to fasten down the capping slates; but great care must be taken when they are nearly driven down, otherwise they will break the capping-slates.

Different Methods of making the Cement.

THE method I would recommend near the sea-coast, where the rain penetrates,

netrates, and is driven with great violence, is as follows. To make a hundred weight, take 66 lb. of the best whiting, 12 lb. of sea-coal or wood-ashes sifted very fine, 10 lb. of hard brick or tile sifted fine, 6 lb. of white lead, and 6 lb. of red lead; put all into an iron pot, and heat it over the fire, till the moisture is entirely evaporated. Keep it stirring all the time; and when well dried, put to it three quarts of boiled, and six quarts of raw, linseed-oil.

lb.

All together will weigh about 117

It will be reduced in drying. 5

Remains nett - - - 112

Mix

Mix the above well with the hand in a tray, or on a board; then well beat it till it becomes tough and soft; mould it thoroughly with the hand, and examine whether all the materials are well incorporated: if they are, it is fit for use.

Cement made after the following manner will effectually answer for town houses, or inland countries.

	lb.
Best whiting - -	82
Sea-coal or wood-	
ashes sifted fine	12
Dry white lead -	6
Raw linseed oil -	<u>17 or 9 quarts</u>
Before dried - -	117



Before

	lb.
Before dried -	117
Reduced in heating	<u>5</u>
Nett weight -	112

Or thus :	lb.
Best whiting -	90
Dry white lead -	10
Oil - - - -	17 or 9 quarts.
Before dried -	<u>117</u>
Reduced in drying	<u>5</u>
Remains nett -	112

In the two last cases also let the materials be well dried in an iron pot before mixed with the oil, and made up in the manner first directed.

The E N D.



POSTSCRIPT.

AS, in the preceding sheets, the Rules laid down for performing the Patent-Slating may appear rather nice; therefore, to facilitate the process in some points which may be considered as difficulties by the workmen employed, let it be understood,—1st, That, if the rafters be sawed nearly true, no planing will be requisite.—2^{dly}, That, instead of leaving a quarter-inch vacancy between the slates, they may lie close to each other on the rafters, without damage, provided holes are made for the screws to

E

pass

pass through to fasten the capping-
 flates.—3dly, That it is not essentially
 necessary to paint either the rafters
 or flates, as before directed.

Shortly will be published by the Patentee,

**A STATE of the PRICES for which the
 PATENT-SLATING will be executed per
 Square, in London and its Environs, in Bristol,
 Bath, &c. exclusive of Land Carriage and
 Travelling Expences.**

4—APR 1939



